REMARKS

The objections to the specification and to claim 41 have been resolved by amendment. The claims, as amended, are clearly not disclosed by or suggested by the references, whether looked at individually or in combination.

The examiner rejected claim 42 as anticipated by Davis '763. Davis discloses a stereoscopic projection system that displays the image pair on separate monitors. As described in column 5 lines 54-59, any barrel distortion is the same for each image and constant regardless of eye position. This barrel distortion can be corrected in the computer as described at column 6 lines 44-49. Davis does not disclose the use of a viewing device located between the viewer's eyes and the monitors, the viewing device re-angling the optical axis of at least one eye so that each eye generally targets the center of a respective one of a pair of images making up the displayed image. Accordingly, Davis' image correction does not counteract image mismatch caused by the viewing device. In fact, Davis is primarily directed at ensuring that there is no image mismatch at all, so would have no need to even consider counteracting image mismatch caused by a viewing device.

The examiner rejected claims 41 and 42 as anticipated by Margulis '994. Margulis discloses a complex image processing system Column 4 is background material that describes, generally, stereoscopic display systems. At column 11 lines 40-43, column 12 lines 45-63, column 13 lines 37-43 and column 16 lines 43-50, Margulis describes correcting the displayed image so that when it is projected on a curved screen, the distortions associated with the curved screen will be filtered out, and also describes correcting image distortion such as keystoning to precompensate for projection distance differences.

Margulis does not disclose the use of a viewing device located between the viewer's eyes and the image display, the viewing device re-angling the optical axis of at least one eye so that each eye generally targets the center of a respective one of a pair of images making up the displayed image. Accordingly, Margulis' image correction does not counteract image distortion caused by the viewer's perspective relative to the image, or image mismatch caused by the viewing device. In fact, Margulis is primarily directed at ensuring that there is no image mismatch at all, so would have no need to even consider counteracting image distortion caused by the viewer's perspective relative to the image, or image mismatch caused by a viewing device.

The examiner rejected claims 14-19 and 21-26 as obvious over Margulis in view of Craig '836. Craig describes the use of two-mirror "periscopes" to view a vertically-arranged stereoscopic image-pair. However, Craig does not address a significant flaw in the method of viewing, e.g., vertically arranged images. To understand this flaw, notice that one eye views its respective image from a low angle (i.e., from level with the bottom of the image), while the other eye views its image from a high angle (i.e., from level with its image's top). This disparity distorts the stereoscopic meld of the two images, effectively giving the perceived 3D image a "twist" about its X-axis (which runs viewer-left to -right). As the present applicant has described, such a disparity may be negligible when the viewer-to-image distance is sufficiently large. But when the viewer is relatively close to the image (as required for an "immersive" viewing experience) the warping effect is pronounced.

Indeed, if the periscopes are made sufficiently "tall" (so that the secondary mirror of each is level with the center of its respective image), then the disparity is eliminated. But that solution makes the resulting viewing device both unwieldy and image-dependent.

By contrast, the present invention has the advantage of benefiting from the *smallest* practical periscope, which *increases* the aforementioned disparity. As a further advantage, a periscope is provided for only *one* of the user's eyes, which introduces a new disparity, owing to unequal optical path lengths (because only one eye traverses the periscope "detour").

Both of these disparities, however, are counteracted by the present invention's deliberate re-shaping (distortion) of at least one of the images prior to viewing. This unique approach relies on a single eye's inability to readily perceive depth (and thus to perceive that its target image may actually be tilted away at the top, e.g.). This makes the present invention especially suitable for immersive close-up viewing of images on typical "flat" media, e.g., computer, TV, or wall.

With respect to the deliberate pre-distortion of images, as described above Margulis can transform the image for display on a curved screen or correct for image distortion such as keystoning. However, none of the references disclose or suggest, or could even employ, distorting one or both images to improve the stereoscopic match between two images that are viewed through an optical device that re-angles the optical axis for one or both eyes.

In summary, the present invention provides a novel and effective method of stereoscopic viewing, having significant advantages of flexibility, quality, and economy over known prior art.

If for any reason this Response is found to be incomplete, or if at any time it appears that a telephone conference with counsel would help advance prosecution, please telephone the undersigned in Westborough, Massachusetts, (508) 898-1501.

Respectfully submitted,

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